

REMARKS

The Rejections Under Obviousness-type Double Patenting

The claims were rejected as allegedly obvious under obviousness-type double patenting over US 6,824,675 in view of US 3,946,104 or US 4,894,205.

As admitted by the Office Action, US 6,824,675 does not teach imperforate conduits.

US 3,946,104, contrary to the allegations, does not teach imperforate conduits either. This reference teaches openings 10 in each tube 9, where a quench gas is admitted in a radial direction. See column 3, lines 65-68, and column 4, lines 10-15. A tube with openings inside for admitting gas in a radial direction cannot be considered an imperforate conduit. Thus, this reference in combination with US 6,824,675 does not teach or suggest the claimed invention.

US 4,894,205 teaches a system quite different than applicants' system. Nevertheless, to clarify the claims herein, they are amended to recite that the orifices (7, 8) are on the bottom of the device, which is clearly illustrated in the figures. In the device of US 4,894,205, the chamber 8 holding the liquid phase does not have orifices on the bottom. Instead, the liquid phase from chamber 8 through liquid inlet 28, rises upward to enter inlet chamber 26. The gas phase also enters chamber 26 through gas inlet opening 27. From this chamber 26, the liquid and the gas phase enter extension tube 42. See the description on column 3, lines 15-33.

Likewise in US 6,824,675, the apparatus is set up such that both a first and second fluid enter the conduits, i.e., a liquid first fluid enters the tube through the perforations and the essentially gaseous second fluid is also supplied to the conduits.

Contrary to this, the injection device in the claims herein contains a chamber 5 that comprises orifices 7, 8 on the bottom of the device from where the first fluid passes to below the device. The imperforate conduits of the device having free ends at the bottom of the device outside said chamber do not receive the first fluid passing from chamber 5 through orifices 7,8 to below the device.

For all the foregoing reasons, the combination of these references does not render the claimed invention obvious.

The Rejections Under 35 USC § 112

Claims 26 and 27 are amended by removing the means plus function language from these claims. Applicant's do not acquiesce in this rejection, but to further prosecution,

amended these claims.

Claim 37 is clarified.

The Rejections Under 35 USC § 102 and 103

The claims were rejected over US 3,946,104 and US 4,894,205 independently from each other. These references were discussed above; nevertheless a few words are said below.

US 3,946,104 teaches openings 10 in each tube 9, where a quench gas is admitted in a radial direction. See column 3, lines 65-68, and column 4, lines 10-15. A tube with openings inside for admitting gas in a radial direction cannot be considered an imperforate conduit. As nothing in this reference teaches or suggests imperforate conduits, there is no anticipation and no obviousness.

US 4,894,205 does not teach or suggest orifices (7, 8) on the bottom of the chamber holding a liquid phase in the device. Instead, the liquid phase from chamber 8 through liquid inlet 28, rises upward to enter inlet chamber 26. As nothing in this reference teaches or suggests orifices on the bottom of the chamber holding a liquid phase, there is no anticipation and no obviousness.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,



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